CLAIMS

1. An interlayer insulating material for a high-density assembly board having interlayer-connecting via holes at most 200 μm in diameter, comprising a cycloolefin polymer containing at least 50 mol% of a repeating unit derived from a cycloolefin monomer.

2. The interlayer insulating material according to Claim 1, wherein the cycloolefin polymer has a glass transition temperature of at least 100°C as measured by a differential scanning calorimeter and a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography.

3. The interlayer insulating material according to Claim 1, wherein the cycloolefin polymer has a polar group.

4. The interlayer insulating material according to Claim 1, which is a curable resin composition comprising a hardener together with the cycloolefin polymer.

5. The interlayer insulating material according to Claim 1, wherein the cycloolefin polymer has a repeating units derived from an alicyclic monomer having a norbornene ring as the repeating unit derived from the cycloolefin monomer.

6. The interlayer insulating material according to Claim 5, wherein the cycloolefin polymer is at least one thermoplastic norbornene resin selected from the group consisting of (1) an addition polymer of an alicyclic monomer having a norbornene ring, (2) an addition copolymer of an alicyclic monomer having a norbornene ring and an unsaturated monomer copolymerizable therewith, (3) a ring-opening polymer of an alicyclic monomer having a norbornene ring and (4) hydrogenated products thereof.

7. The interlayer insulating material according to Claim 1, wherein the cycloolefin polymer has a repeating units derived from a monocyclic cycloolefin monomer as the repeating unit derived from the cycloolefin monomer.

8. The interlayer insulating material according to Claim 1, wherein the cycloolefin polymer has a repeating units derived from a cyclic conjugated diene monomer as the repeating unit derived from the cycloolefin monomer.

9. The interlayer insulating material according to Claim 8, wherein the cycloolefin polymer is at least one selected from the group consisting of an addition polymer of a cyclic conjugated diene monomer and hydrogenated products thereof.

10. The interlayer insulating material according to

Claim 3, wherein the cycloolefin polymer is a modified polymer obtained by graft-reacting a polar group-containing unsaturated compound with an unmodified cycloolefin polymer.

11. The interlayer insulating material according to Claim 4, wherein the hardener is selected from the group consisting of (1) an organic peroxides, (2) a hardener capable of exhibiting its effect by heat and (3) a hardener capable of exhibiting its effect by light.

12. The interlayer insulating material according to Claim 4, wherein the curable resin composition comprises the hardener in a proportion of 0.1 to 30 parts by weight per 100 parts by weight of the cycloolefin polymer.

13. The interlayer insulating material according to any one of Claims 1 to 12, which is a varnish further comprising an organic solvent.

14. A high-density assembly board having interlayer-connecting via holes at most 200 μm in diameter, wherein an interlayer insulating film of the board comprises a cycloolefin polymer containing at least 50 mol% of a repeating unit derived from a cycloolefin monomer.

15. A semiconductor package making use of the high-density assembly board according to Claim 14.

16. A dry film formed from a curable resin composition comprising a polymer having a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography, and a hardener.

17. The dry film according to Claim 16, wherein the cycloolefin polymer contains at least 50 mol% of a repeating unit derived from a cycloolefin monomer and has a glass transition temperature of at least 100°C as measured by a differential scanning calorimeter.

18. The dry film according to Claim 16, wherein the cycloolefin polymer has a polar group.

19. The dry film according to Claim 16, wherein the curable resin composition is a varnish further comprising an organic solvent.

20. A process for producing a dry film, the process comprising the steps of applying a curable resin composition comprising a cycloolefin polymer having a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography, a hardener and a solvent to a substrate and removing the

organic solvent under conditions that a curing reaction of the curable resin composition is not caused to completely proceed.

21. A laminate comprising an insulating layer formed with a dry film formed from a curable resin composition comprising a polymer having a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography, and a hardener, and a conductive layer formed on the surface of the insulating layer.

22. A multi-layer laminate further comprising each at least one insulating layer formed with the dry film and conductive layer on the conductive layer-forming surface of the laminate according to Claim 21, wherein the conductive layers are connected to each other by forming interlayer-connecting via holes in the insulating layer provided between them.

23. A process for producing a multi-layer laminate, which comprises a step (A) of laminating a dry film formed from a curable resin composition comprising a polymer having a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography, and a hardener on at least one side of a substrate, conducting the curing of the dry film and the

formation of interlayer-connecting via holes, and then forming a conductive layer on the surface of the dry film and wall surfaces of the via holes to produce a laminate, and a step (B) of laminating an additional dry film on the conductive layer-forming surface of the laminate to conduct the curing of the dry film, formation of interlayer-connecting via holes and formation of a conductive layer in the same manner as in the step (A), wherein the step (B) is repeated at least once.

24. A resin-attached metal foil obtained by forming a film of a cycloolefin polymer on one side of a metal foil.

25. The resin-attached metal foil according to Claim 24, wherein the cycloolefin polymer contains at least 50 mol% of a repeating unit derived from a cycloolefin monomer, and has a glass transition temperature of at least 100°C as measured by a differential scanning calorimeter and a number average molecular weight within a range of 1,000 to 1,000,000 as measured by gel permeation chromatography.

26. The resin-attached metal foil according to Claim 24, wherein the cycloolefin polymer has a polar group.

27. The resin-attached metal foil according to Claim 24, wherein the cycloolefin polymer is a curable resin

composition comprising a hardener.

28. A laminate obtained by laminating a resin-attached metal foil obtained by forming a film of a cycloolefin polymer on one side of a metal foil on at least one side of a substrate with the side of the resin film turned inside.

29. A process for producing a build-up multi-layer laminate, the process comprising a step (A) of forming a wiring pattern on the metal foil side of the laminate according to Claim 28 and a step (B) of laminating the resin-attached metal foil on the wiring pattern with the side of the resin film turned inside and then forming a wiring pattern in the same manner as in the step (A), wherein the step (B) is repeated at least once.

30. A build-up multi-layer laminate produced by the process according to Claim 29.